

AMENDMENTS TO THE CLAIMS

The following is a complete listing of the claims indicating the current status of each claim and including amendments currently entered as highlighted.

1-44. (Canceled)

45. (New) An electrochemical device for scale treatment in water supply systems, the device comprising:

- (a) an electrochemical cell including:
 - (i) a metallic tank for receiving a water supply, said tank forming a cathode of said electrochemical cell; and
 - (ii) at least one anode, disposed within said tank;

said electrochemical cell for operatively connecting to an electrical power supply, said electrochemical cell operative to produce a pH above 12 near a wall of said tank, to form a scale deposition on said wall, thereby removing said deposition from said water supply;

- (b) an elastic scraper disposed within said tank, said scraper operative to scrape said wall of said tank; and

- (c) a control system for said elastic scraper, said control system adapted to activate said scraper to scrape said wall to promote said scale deposition on said wall,

said scraper responsive to said control system,

wherein said control system is adapted to activate said scraper to scrape said wall, based on both:

- (i) a measurement of an electrical property associated with a thickness of said scale deposition, and
- (ii) a pre-determined time parameter.

46. (New) The electrochemical device of claim 45, wherein said control system includes a timing mechanism, said timing mechanism operative to activate said scraper to scrape said wall, responsive to said pre-determined time parameter.

47. (New) The electrochemical device of claim 45, wherein said electrical property includes electrical resistance.

48. The electrochemical device of claim 47, wherein said control system is adapted to activate said scraper to scrape said wall, based on a differential in said electrical resistance.

49. (New) The electrochemical device of claim 45, wherein said pre-determined time parameter is a fixed time interval.

50. (New) The electrochemical device of claim 49, wherein said fixed time interval is up to 12 hours.

51. (New) The electrochemical device of claim 50, wherein said fixed time interval is up to 1 hour.

52. (New) The electrochemical device of claim 45, further comprising said electrical power supply, said power supply adapted to supply a pre-determined constant current.

53. (New) The electrochemical device of claim 45, wherein said control system is adapted to control said scraper to reduce a calcium hardness in a water flow delivered to said electrochemical cell below 200 ppm, on a CaCO_3 basis, and to maintain said calcium hardness at a level below about 110 ppm, on said basis.

54. (New) The electrochemical device of claim 45, wherein said control system is adapted to control said scraper to reduce a calcium hardness in a water flow delivered to said electrochemical cell and to maintain said calcium hardness at a level below about 85 ppm, on a CaCO_3 basis.

55. (New) The electrochemical device of claim 45, wherein said control system is adapted to control said scraper to reduce a calcium hardness in a water flow delivered to said electrochemical cell and to maintain said calcium hardness at a level below about 55 ppm, on a CaCO_3 basis.

56. (New) An electrochemical device for scale treatment in water supply systems, the device comprising:

- (a) an electrochemical cell including:
 - (i) a metallic tank for receiving a water supply, said tank forming a cathode of said electrochemical cell; and
 - (ii) at least one anode, disposed within said tank;

said electrochemical cell operatively connected to an electrical power supply electrical power supply adapted to supply a constant current, said electrochemical cell operative to produce a pH above 12 near a wall of said tank, to form a scale deposition on said wall, thereby removing said deposition from said water supply;

- (b) an elastic scraper disposed within said tank, said scraper operative to scrape said wall of said tank; and

- (c) a control system for said elastic scraper, said control system adapted to activate said scraper to scrape said wall to promote said scale deposition on said wall,

said scraper responsive to said control system,

wherein said control system is adapted to activate said scraper to scrape said wall, based on both:

- (i) a measurement of an electrical property associated with a thickness of said scale deposition, and

(ii) a pre-determined time parameter,
wherein said electrical property includes electrical resistance.

57. (New) The electrochemical device of scale treatment of claim 56, wherein said control system includes a timing mechanism, said timing mechanism operative to activate said scraper to scrape said wall, responsive to said pre-determined time parameter.

58. (New) The electrochemical device of claim 56, wherein said control system is adapted to control said thickness of said scale deposition wherein said thickness reaches up to a maximum thickness of 800 microns.

59. (New) An electrochemical method of scale treatment in water supply systems, the method comprising the steps of:

(a) providing a system including:

(i) an electrochemical cell including:

(I) a metallic tank for receiving a water supply, said tank forming a cathode of said electrochemical cell; and

(II) at least one anode, disposed within said tank;

said electrochemical cell operatively connected to an electrical power supply, said electrochemical cell operative to produce a pH above 12 near a wall of said tank, to form a scale deposition on said wall, thereby removing said deposition from said water supply;

(ii) an elastic scraper disposed within said tank, said scraper operative to scrape said wall of said tank; and

(iii) a control system for said elastic scraper, said control system adapted to activate said scraper to scrape said wall to promote said scale deposition on said wall,

(b) activating said scraper, by means of said control system, to scrape said wall, thereby promoting said scale deposition on said wall,

wherein said control system activates said scraper to scrape said wall, based on both:

- (i) a measurement of an electrical property associated with a thickness of said scale deposition, and
- (ii) a pre-determined time parameter.

60. (New) The electrochemical method of claim 59, wherein said control system utilizes said measurement and said pre-determined time parameter to effect said activating of said scraper, to:

- reduce a calcium hardness in a water flow delivered to said electrochemical cell and
- maintain said calcium hardness at a level below about 110 ppm, on a CaCO_3 basis.

61. (New) The electrochemical method of claim 59, wherein said control system utilizes said measurement and said pre-determined time parameter to effect said activating of said scraper, to:

- reduce a calcium hardness in a water flow delivered to said electrochemical cell and
- maintain said calcium hardness at a level below about 85 ppm, on a CaCO_3 basis.

62. (New) The electrochemical method of claim 59, wherein said control system utilizes said measurement and said pre-determined time parameter to effect said activating of said scraper, to:

- reduce a calcium hardness in a water flow delivered to said electrochemical cell below 200 ppm and
- maintain said calcium hardness at a level below about 110 ppm, on a CaCO_3 basis.

63. (New) The electrochemical method of claim 62, wherein said control system controls said thickness of said scale deposition wherein said thickness reaches up to a maximum thickness of 800 microns.

64. (New) The electrochemical method of claim 62, wherein said electrical power supply supplies a pre-determined constant current.